

Claims

1. A valve, said valve having a ball and first and second sealing means against which the ball is selectively positioned to provide a sealing effect when the valve is in a closed position and wherein the first and second sealing means both provide a sealing effect with respect to said ball when under the influence of a pressurised fluid within a pipeline to which the valve is fitted.
2. A valve according to claim 1 wherein the first sealing means is positioned upstream of the ball to provide a seal against an upstream side of the ball and the second sealing means is provided downstream of the ball to provide a seal against an opposing downstream side of the ball with respect to the flow of fluid along the pipeline to which the valve is fitted.
3. A valve according to claim 1 wherein the ball has a port passing therethrough, said ball rotatable with respect to the valve body and movable between an open position in which the port is in line with the pipeline to which the valve is connected and a closed condition in which the port is sealed off from the pipeline by the sealing means.
4. A valve according to claim 1 wherein the pressurised fluid source is the fluid passing along a pipeline to which the valve is fitted.
5. A valve according to claim 1 wherein the ball is a modification of a floating ball design and the first and second sealing means are modified pressure dynamic seats of a trunnion mounted ball valve design.

6. A valve according to claim 1 wherein the sealing means and/or the ball are selectively movable with respect to the valve body to create a sealing effect.
7. A valve according to claim 1 wherein both upstream and downstream sealing means or seats are made to work simultaneously under the pressurised used fluid flowing in one direction.
8. A valve with one ball and two sealing means acting as pressure barriers to allow the valve to provide a double block/pressure barrier isolation capability.
9. A valve assembly wherein two valves are mounted inline to provide a two ball element valve with quadruple block/pressure barrier isolation, and at least one of the valves is of a form described in the preceding claims.
10. A valve according to any preceding claims wherein the valve includes an intervening bleed valve.
11. A valve according to any of the preceding claims wherein the valve includes an intervening port for the location of sensing instruments, probes, sampling removal and/or injection apparatus.
12. A valve according to any of the preceding claims wherein the downstream side of the valve can be vented.
13. A valve according to any of the preceding claims wherein at least one pressure sensor is provided in a cavity in the valve in which the ball sits.

14. A valve according to any of the preceding claims wherein the ball is movable within the cavity of the valve and the sealing means upstream of the ball is movable to and from said ball and, in turn, the ball, with the upstream sealing means in engagement therewith, is movable under the influence of the pressurised fluid onto the sealing means downstream of the ball which in turn is movable in the valve.

15. A valve according to any of the preceding claims wherein the sealing means upstream of the ball is provided with a mechanical advantage such that the effect of the pressurised fluid on a first face of the sealing means generates an increased pressure of the sealing face between the sealing means and the ball.

16 A valve according to any of the preceding claims wherein the movement of the ball and sealing means is limited in terms of length of movement such that when in a closed position pressurised seals are created between the sealing means located upstream of the ball and a first side of the ball and the sealing means located downstream of the ball and an opposing side of the ball.

17 A valve according to any of the preceding claims wherein the sealing means positioned upstream of the ball is provided to be movable towards the ball under the influence of pressure at a first level applied by fluid in the pipeline flowing towards the valve, to form a first seal on the ball and the ball and said sealing means, with the first seal maintained, are provided to be movable towards the sealing means positioned downstream of the ball under the influence of said fluid at the same or greater pressure level to form the second seal.

18 A valve according to claim 17 wherein the ball and said sealing means are provided to move towards the sealing means downstream of the ball, when a pressure at a level greater than the first pressure level is reached.

19 A valve according to claim 17 or 18 wherein the sealing means positioned downstream of the ball is provided to move within a limited extent when the pressure level which moves the ball is reached.

20. A valve according to any of the preceding claims wherein a stem is provided to allow rotation of the ball between open and closed positions, said stem provided with engagement means with said ball to allow movement of the ball to be achieved and allow operation of the ball between open and closed positions by movement of the stem.

21. A valve according to any of the preceding claims wherein the said valve is fitted to a pipeline in conjunction with a check or non-return valve.

22 A pipeline wherein said pipeline has at least one valve in accordance with the preceding claims fitted thereto to be operated to selectively allow the flow of fluid along said pipeline.

23 A valve having at least one ball and first and second sealing means to provide seals on opposing upstream and downstream sides of the ball wherein the sealing means positioned upstream of the ball is provided to be movable towards the ball under the influence of pressure at a first level applied by fluid in the pipeline flowing towards the valve, and the ball and said sealing means are provided to be movable towards the sealing means positioned downstream of the ball under the influence of said fluid at the same or greater pressure level.

24 A valve according to claim 22 wherein the ball and said sealing means are provided to move towards the sealing means downstream of the ball, when a pressure at a level greater than the first pressure level is reached.